Missouri Department of Natural Resources

PUBLIC NOTICE

DRAFT MISSOURI STATE OPERATING PERMIT

DATE: August 11, 2006

In accordance with the state Clean Water Law, Chapter 644, RSMo, Clean Water Commission regulation 10 CSR 20-6.010, and the federal Clean Water Act, the applicants listed herein have applied for authorization to either discharge to waters of the state or to operate a no-discharge wastewater treatment facility. The proposed permits for these operations are consistent with applicable water quality standards, effluent standards and/or treatment requirements or suitable timetables to meet these requirements (see 10 CSR 20-7.015 and 7.031). All permits will be issued for a period of five years, unless noted otherwise in the Public Notice for that discharge.

On the basis of preliminary staff review and the application of applicable standards and regulations, the Missouri Department of Natural Resources (MDNR), as administrative agent for the Missouri Clean Water Commission, proposes to issue a permit(s) subject to certain effluent limitations, schedules, and special conditions. The proposed determinations are tentative pending public comment.

Persons wishing to comment on the proposed effluent limitations and/or determinations are invited to submit them in writing to the Department of Natural Resources, Northeast Regional Office, 1709 Prospect Drive, Macon, MO 63552, ATTN: G. Irene Crawford, Regional Director. Please include the permit number in all comment letters.

Comments should be confined to the issues relating to the proposed action and permit(s) and the effect on water quality. The MDNR may not consider as relevant comments or objections to a permit based on issues outside the authority of the Clean Water Commission, (see Curdt v. Mo. Clean Water Commission, 586 S.W.2d 58 Mo. App. 1979).

All comments must be postmarked by September 11, 2006 or received in our office by 5:00 p.m. on September 14, 2006. The requirement of a signed document makes it impossible to accept email comments for consideration at this time. Comments will be considered in the formulation of all final determinations regarding the applications. If response to this notice indicates significant public interest, a public meeting or hearing may be held after due notice for the purpose of receiving public comment on the proposed permit or determination. Public hearings and/or issuance of the permit will be conducted or processed according to 10 CSR 20-6.020.

Copies of all draft permits and other information including copies of applicable regulations are available for inspection and copying at DNR's website, http://www.dnr.mo.gov/env/wpp/index.html, or at the Department of Natural Resources, Northeast Regional Office, 1709 Prospect Drive, Macon, Missouri 63552.

Public Notice Date: August 11, 2006
Permit Number: MO-0095001
Northeast Regional Office

FACILITY NAME AND ADDRESS	NAME AND ADDRESS OF OWNER
Southwood Hills WWTP 3400 Southwood Acres Jefferson City, MO 65101	Aqua Missouri, Inc. P.O. Box 7017 Jefferson City, MO 65102
RECEIVING STREAM & LEGAL DESCRIPTION	**TYPE OF DISCHARGE**
Unnamed tributary to Moreau River (U) Moreau River(P)(00941) Sec. 35, T44N, R12W, Cole County	Domestic, modification – expansion of existing treatment plant

STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No.	MO-0095001
Owner:	Aqua Missouri, Inc.
Address:	P.O. Box 7017, Jefferson City, MO 65102
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	Southwood Hills WWTP
Facility Address:	3400 Southwood Acres, Jefferson City, MO 65101
Legal Description:	NW ¼, NE ¼, Sec. 35, T44N, R12W, Cole County
Latitude/Longitude:	3831268/-9212373
Receiving Stream:	Unnamed tributary to Moreau River (U)
First Classified Stream and ID:	Moreau River (P) (00941)
USGS Basin & Sub-watershed No.:	(10300102-220002)

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

FACILITY DESCRIPTION

Outfall #001 – Subdivision - SIC #4952
Flow equalization/extended aeration/seasonal disinfection:chlorination and dechlorination/sludge is hauled to Jefferson City Treatment Plant by owner.
Design population equivalent is 348.
Design flow is 29,859 gallons per day.
Actual flow is 27,000 gallons per day.
Design sludge production is 6.3 dry tons/year.
Actual sludge production is 2.5 dry tons/year.

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

Effective Date

Doyle Childers, Director, Department of Natural Resources
Executive Secretary, Clean Water Commission

Expiration Date

G. Irene Crawford, Director, Northeast Regional Office

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS	PAGE NUMBER 2 of 4
	PERMIT NUMBER MO-0095001

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001						
Flow	MGD	*		*	once/month	24 hr. estimate
Biochemical Oxygen Demand$_5$	mg/L		45	30	once/month	grab
Total Suspended Solids	mg/L		45	30	once/month	grab
pH – Units	SU	**		**	once/month	grab
Ammonia as N (May 1 – October 31)	mg/L	3.7		1.9	once/month	grab
Ammonia as N (November 1 – April 30)	mg/L	7.5		3.7	once/month	grab
Fecal Coliform (Note 1)	#/100mL	1000		400	once/month	grab
Total Residual Chlorine (Note 2)	mg/L	0.017		0.008	once/month	grab
Temperature	^{0}C	*		*	once/month	grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE _____. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I & III STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

MO 780-0010 (8/91)

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

* Monitoring requirement only.

** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.0-9.0 pH units.

Note 1 – Final limitations and monitoring requirements for Fecal Coliform are applicable only during the recreational season from April 1 through October 31.

Note 2- This permit contains a Total Residual Chlorine (TRC) limit.

(a) If the TRC limit in this permit is 0.01 mg/L or 0.2 mg/L, you must use an analytical method that has a quantification limit of no greater than 0.05 mg/L TRC. For reporting purposes on the discharge monitoring report (DMR), all analytical values below 0.05 mg/L shall be reported as "< 0.05 mg/L." All analytical values at or above the quantification limit of 0.05 mg/L shall be reported as the measured value. The permittee shall report the quantification limit in the remarks section of the DMR.

The average monthly effluent values for TRC will be determined by assuming that analytical results below the quantification limit are equivalent to 0 mg/L when calculating the monthly average.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

Note 2 - Total Residual Chlorine (TRC) (continued)

The daily effluent value will be considered equal to 0 mg/L if it is below the quantification limit.

(b) If the TRC limit in this permit is 1.0 mg/L; you must use an analytical method with a quantification limit between 0.2 and 0.5 mg/L. All analytical values below the quantification limit shall be reported as "< quantification limit." All analytical values at or above the quantification limit shall be reported as the measured value.

The average monthly effluent values for TRC will be determined by assuming that analytical results below the quantification limit are equivalent to 0 mg/L when calculating the monthly average.

The daily effluent value will be considered equal to 0 mg/L if it is below the quantification limit.

(c) Disinfection is required year-round unless the permit specifically states that "Final limitations and monitoring requirements for Fecal Coliform are applicable only during the recreational season from April 1 through October 31." If your permit does not require disinfection during the non-recreational months, do not chlorinate in those months.

(d) Do not chemically dechlorinate if it is not needed to meet the limits in your permit.

(e) If no chlorine was used in a given sampling period, an actual analysis is not necessary. Simply report as "0 mg/L" TRC.

C. SPECIAL CONDITIONS

1. This permit may be reopened and modified, or alternatively revoked and reissued, to:

(a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:

(1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
(2) controls any pollutant not limited in the permit.

(b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.

(c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.

The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

2. All outfalls must be clearly marked in the field.

3. Permittee will cease discharge by connection to areawide wastewater treatment system within 90 days of notice of its availability.

C. SPECIAL CONDITIONS (continued)

4. Changes in Discharges of Toxic Substances
The permittee shall notify the Director as soon as it knows or has reason to believe:

(a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
(1) One hundred micrograms per liter (100 µg/L);
(2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
(3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
(4) The level established in Part A of the permit by the Director.

(b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.

5. Report as no-discharge when a discharge does not occur during the report period.

6. Water Quality Standards
(a) Discharges to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031, including both specific and general criteria.
(b) General Criteria. The following general water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:

(1) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
(2) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
(3) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
(4) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
(5) There shall be no significant human health hazard from incidental contact with the water;
(6) There shall be no acute toxicity to livestock or wildlife watering;
(7) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
(8) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.

7. Sludge and Biosolids Use For Domestic Wastewater Treatment Facilities
(a) Permittee shall comply with the pollutant limitations, monitoring, reporting, and other requirements in accordance with the attached permit Standard Conditions.
(b) If sludge is not removed by a contract hauler, permittee is authorized to land apply biosolids. Permit Standard Conditions, Part III shall apply to the land application of biosolids. Permittee shall notify the department at least 180 days prior to the planned removal of biosolids. The department may require submittal of a biosolids management plan for department review and approval as determined appropriate on a case-by-case basis.

Missouri Department of Natural Resources
Water Protection Program
NPDES Permits and Engineering Section

Water Quality Review Sheet

Determination of Effluent Limits and Monitoring Requirements

FACILITY INFORMATION

FACILITY NAME: Southwood Hills WWTF NPDES #: MO-0095001

FACILITY TYPE/DESCRIPTION: Upgrade/Expansion of existing facility to 30,214 gpd; facility must also add disinfection due to WBC requirements for Moreau River

EDU*: Ozark/Moreau/Loutre 8- DIGIT HUC: 10300102 COUNTY: Cole

* - Ecological Drainage Unit

LEGAL DESCRIPTION: NW NE Sec. 35, T44N, R12W LATITUDE/LONGITUDE: +3831268/-09212373

WATER QUALITY HISTORY: Existing facility in compliance with effluent limitations; no recent stream surveys have been conducted for this facility.

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	RECEIVING WATERBODY	DISTANCE TO CLASSIFIED SEGMENT (MI)
001	0.047	Secondary	Tributary to Moreau River	0.50 miles

RECEIVING WATERBODY INFORMATION

WATERBODY NAME	CLASS	WBID	LOW-FLOW VALUES (CFS)			DESIGNATED USES**
			1Q10	7Q10	30Q10	
Tributary to Moreau River	U	----	0.0	0.0	0.0	General Criteria
Moreau River	P	0941	0.1	0.1	1.0	LWW, AQL, WBC, SCR

** Irrigation (IRR), Livestock & Wildlife Watering (LWW), Protection of Warm Water Aquatic Life and Human Health-Fish Consumption (AQL), Cool Water Fishery (CLF), Cold Water Fishery (CDF), Whole Body Contact Recreation (WBC), Secondary Contact Recreation (SCR), Drinking Water Supply (DWS), Industrial (IND)

COMMENTS: A previous water quality review was conducted in February 2005 for DF = 55,500 gpd. This WQRS uses updated design flow information and incorporates new water quality criteria for Total Ammonia Nitrogen.

MIXING CONSIDERATIONS

Mixing Zone (MZ): Not allowed, 7Q10 less than 0.1 cfs [10 CSR 20-7.031(4)(A)4.B.(I)(a)]

Zone of Initial Dilution (ZID): Not allowed [10 CSR 20-7.031(4)(A)4.B.(I)(b)]

	Flow (cfs)	MZ (cfs)	ZID (cfs)
7Q10	0.0	0.0	0.0
1Q10	0.0	0.0	0.0
30Q10	0.0	0.0	N/A

Applicable mixing zone regulation: 10 CSR 20-7.031(4)(A)4.B.(I)

PERMIT LIMITS AND INFORMATION

WASTELOAD ALLOCATION STUDY CONDUCTED (Y OR N): N

USE ATTAINABILITY ANALYSIS CONDUCTED (Y OR N): N

WHOLE BODY CONTACT USE RETAINED (Y OR N): Y

OUTFALL #001

WET TEST (Y OR N): N FREQUENCY: ---- AEC: ---- METHOD: ----

PARAMETER	UNITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MONITORING FREQUENCY
FLOW	MGD	*		*	ONCE/DAY
TEMPERATURE	^{O}C	*		*	ONCE/MONTH
BIOCHEMICAL OXYGEN DEMAND (BOD_5)**	MG/L		45	30	ONCE/MONTH
TOTAL SUSPENDED SOLIDS**	MG/L		45	30	ONCE/MONTH
PH	SU	6 – 9		6 - 9	ONCE/MONTH
TOTAL AMMONIA NITROGEN (MAY 1 – OCT 31)	MG/L	3.7		1.9	ONCE/MONTH
TOTAL AMMONIA NITROGEN (NOV 1 – APR 30)	MG/L	7.5		3.7	ONCE/MONTH
FECAL COLIFORM	NOTE 1	1000		400	ONCE/MONTH
TOTAL RESIDUAL CHLORINE	MG/L	0.017		0.008	ONCE/MONTH

* - Monitoring Requirement Only, ** - This facility is required to meet a removal efficiency of 85% or more for BOD_5 and TSS. Influent BOD_5 and TSS data should be reported to ensure removal efficiency requirements are met.

Note 1 – colonies/100 mL

RECEIVING WATER MONITORING REQUIREMENTS

No receiving water monitoring requirements recommended at this time.

DERIVATION AND DISCUSSION OF LIMITS

Wasteload allocations were calculated using water quality criteria or water quality model results and the dilution equation below:

$$C = \frac{(Cs \times Qs) + (Ce \times Qe)}{(Qe + Qs)}$$ (EPA/505/2-90-001, Section 4.5.5)

Where C = downstream concentration
Cs = upstream concentration
Qs = upstream flow
Ce = effluent concentration
Qe = effluent flow

Chronic wasteload allocations were determined using applicable chronic water quality criteria (CCC: criteria continuous concentration) and stream volume of flow at the edge of the mixing zone (MZ). Acute wasteload allocations were determined using applicable water quality criteria (CMC: criteria maximum concentration) and stream volume of flow at the edge of the zone of initial dilution (ZID).

Water quality based maximum daily and average monthly effluent limitations were calculated using methods and procedures outlined in USEPA's "Technical Support Document For Water Quality-based Toxics Control" (EPA/505/2-90-001).

Outfall #001 – Main Facility Outfall

- **Biochemical Oxygen Demand (BOD_5).** 30 mg/L monthly average, 45 mg/L weekly average [10 CSR 20-7.015(8)(B)1].

- **Total Suspended Solids (TSS).** 30 mg/L monthly average, 45 mg/L weekly average [10 CSR 20-7.015(8)(B)1].

- **pH.** pH shall be maintained in the range from six to nine (6 – 9) standard units [10 CSR 20-7.015 (8)(B)2.]

- **Total Ammonia Nitrogen.** Early Life Stages Present Total Ammonia Nitrogen criteria apply [10 CSR 20-7.031(4)(B)7.C. & Table B3]. Background total ammonia nitrogen = 0.01 mg/L

Season	Temp (^oC)	pH (SU)	Total Ammonia Nitrogen CCC (mg/L)	Total Ammonia Nitrogen CMC (mg/L)
Summer	26	7.8	1.5	12.1
Winter	6	7.8	3.1	12.1

Summer: May 1 – October 31, Winter: November 1 – April 30

Summer

Chronic WLA: $C_e = ((0.047 + 0.0)1.5 – (0.0 * 0.01))/0.047$
$C_e = 1.5$ mg/L

Acute WLA: $C_e = ((0.047 + 0.0)12.1 – (0.0 * 0.01))/0.047$
$C_e = 12.1$ mg/L

$LTA_c = 1.5$ mg/L (0.780) = 1.2 mg/L [CV = 0.6, 99th Percentile, n = 30]
$LTA_a = 12.1$ mg/L (0.321) = 3.9 mg/L [CV = 0.6, 99th Percentile]

MDL = 1.2 mg/L * 3.11 = 3.7 mg/L [CV = 0.6, 99th Percentile]
AML = 1.2 mg/L * 1.55 = 1.9 mg/L [CV = 0.6, 95th Percentile, n = 4]

Winter

Chronic WLA: $C_e = ((0.047 + 0.0)3.1 – (0.0 * 0.01))/0.047$

C_e = 3.1 mg/L

Acute WLA: $C_e = ((0.047 + 0.0)12.1 – (0.0 * 0.01))/0.047$

C_e = 12.1 mg/L

LTA_c = 3.1 mg/L (0.780) = 2.4 mg/L [CV = 0.6, 99th Percentile, n = 30]
LTA_a = 12.1 mg/L (0.321) = 3.9 mg/L [CV = 0.6, 99th Percentile]

MDL = 2.4 mg/L * 3.11 = 7.5 mg/L [CV = 0.6, 99th Percentile]
AML = 2.4 mg/L * 1.55 = 3.7 mg/L [CV = 0.6, 95th Percentile, n = 4]

Season	Maximum Daily Limit (mg/l)	Average Monthly Limit (mg/l)
Summer	3.7	1.9
Winter	7.5	3.7

- **Fecal Coliform**. Discharge shall not contain more than a monthly geometric mean of 400 colonies/100 mL, daily maximum of 1000 colonies/100 mL [10 CSR 20-7.015(8)(B)4.A.] Future renewals of the facility operating permit will contain effluent limitations for E. coli which will replace fecal coliform as the applicable bacteria criteria in Missouri's water quality standards.

- **Total Residual Chlorine (TRC)**. Warm-water Protection of Aquatic Life CCC = 10 µg/L, CMC = 19 µg/L [10 CSR 20-7.031, Table A]. Background TRC = 0.0 µg/L

  Chronic WLA: $C_e = ((0.047 + 0.0)10 – (0.0 * 0.0))/0.047$

  C_e = 10 µg/L

  Acute WLA: $C_e = ((0.047 + 0.0)19 – (0.0 * 0.0))/0.047$

  C_e = 19 µg/L

  LTA_c = 10 µg/L (0.527) = **5.3 µg/L** [CV = 0.6, 99th Percentile]
  LTA_a = 19 µg/L (0.321) = 6.1 µg/L [CV = 0.6, 99th Percentile]

  MDL = 5.3 µg/L * 3.11 = 16.5 µg/L [CV = 0.6, 99th Percentile]
  AML = 5.3 µg/L * 1.55 = 8.2 µg/L [CV = 0.6, 95th Percentile, n = 4]

  Total Residual Chlorine effluent limits of 0.017 mg/L daily maximum, 0.008 mg/L monthly average are recommended if chlorine is used as a disinfectant. Standard compliance language for TRC, including the minimum level (ML), should be included in the permit.

Reviewer: John Hoke
Date: June 15, 2006
Unit Chief: Refaat Mefrakis

Monitoring and effluent limits contained within this document have been developed in accordance with EPA guidelines using the best available data and are believed to be consistent with Missouri's Water Quality Standards and Effluent Regulations. If additional water quality data or anecdotal information are available that may affect the recommended monitoring and effluent limits, please forward these data and information to the author.